

CLAIMS

What is claimed as new and desired to be protected by Letters Patent of the United States is:

1. An optical receiver comprising:
a photosensitive device; and
a plurality of series-connected amplifier stages coupled to the photosensitive device;
wherein a first of the amplifier stages includes an amplifier series-connected to an attenuator, and a second of the amplifier stages includes:
a second amplifier;
a second attenuator; and
a switch coupling one of the second amplifier or the second attenuator between the first amplifier stage and an output terminal of the optical receiver.
2. The receiver of Claim 1 wherein a third of the amplifier stages includes:
a third amplifier;
a third attenuator; and
a second switch coupling one of the third amplifier or the third attenuator between the second amplifier stage and the output terminal of the receiver.
3. The receiver of Claim 1, further comprising a control circuit coupled to a control terminal of each of the switches.
4. The receiver of Claim 3, wherein the control circuit has an input terminal coupled to the photosensitive device.
5. The receiver of Claim 3, wherein the control circuit controls the switches responsive to the optical power received by the photosensitive device.

6. The receiver of Claim 1, wherein each switch includes two elements, and each element includes:
- a control terminal;
 - a common terminal; and
 - two current handling terminals respectively connected to the second amplifier and the second attenuator;
 - two diodes respectively connected between the common terminal and the two current handling terminals; and
 - a control device having its control electrode connected to the control terminal of the switch element and having an output terminal connected to one of the diodes.
7. The receiver of Claim 1, wherein the photosensitive device is one of a photodiode or phototransistor.
8. The receiver of Claim 1, further comprising an inductance connected between the photosensitive device and the first amplifier stage.
9. The receiver of Claim 3, wherein the control circuit controls the switches to provide a maximum power to noise ratio for the optical receiver at any level of output power of the photosensitive device.
10. The receiver of Claim 1, wherein the second attenuator is a fixed attenuator.
11. The receiver of Claim 1, wherein an RF signal is provided at the output terminal of the optical receiver.
12. A method of operating an optical receiver having a plurality of series-connected stages driven by a photodetector, comprising the acts of:
- determining a level of power output from the photodetector; and

coupling one of the stages to either amplify or attenuate an input signal from the photodetector in response to the level of power output from the photodetector.

13. The method of Claim 12 wherein the one of the stages includes:
 - an amplifier;
 - an attenuator; and
 - a switch coupling one of the amplifier or the attenuator between the photodetector and an output terminal of the optical receiver.
14. The method of Claim 13, further comprising the act of controlling the switch in order to couple the stage to amplify or attenuate.
15. The method of Claim 13, wherein the switch includes two elements, and each element includes:
 - a control terminal;
 - a common terminal; and
 - two current handling terminals respectively connected to the amplifier and the attenuator;
 - two diodes respectively connected between the common terminal and the two current handling terminals; and
 - a control device having its control electrode connected to the control terminal of the switch element and having an output terminal connected to one of the diodes.
16. The method of Claim 12, wherein the photodetector device is one of a photodiode or phototransistor.
17. The receiver of Claim 13, further comprising the act of inductively coupling the photodetector to the stage.

18. The method of Claim 13, further comprising the act of controlling the coupling to provide a maximum power to noise ratio for the optical receiver at any level of output power from the photodetector.

19. The method of Claim 13, wherein the attenuator is a fixed attenuator.

20. The method of Claim 12, further comprising the act of electrically sensing the level of output power.

21. The method of Claim 12, further comprising the act of applying an analog optical signal to the photodetector.

22. The method of Claim 12, further comprising the act of amplifying the input signal from the photodetector prior to the act of coupling the input signal to either amplify or attenuate.